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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/924,892

Applicant(s)

IWASA, TADASHI

Examiner

Hai C Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,13,15,17,19 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,13,15,17,19 and 25-32 is/are rejected.
- 7) ☒ Claim(s) 33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

FINAL REJECTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. (U.S. 5,975,772) in view of Taniguchi et al. (U.S. 4,737,822) and Arai et al. (U.S. 6,215,103).

Imai et al. ('772) discloses a thermal developing apparatus, which extracts unexposed films (A) one by one and carries them to an exposure unit (46), radiates a laser beam (L) according to an image signal onto the film as it passes the exposure unit, and developing the exposed film by heating it at a heating unit (heating drum 68), which provide a uniform temperature distribution.

However, Imai et al. ('772) fails to disclose the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously, the heating unit being provided with heating blocks arranged on either side of the film, the film passage comprising two fluoresin coated opposing surfaces having a constant width, and the U-shaped carrying path.

Regardless, Taniguchi et al. discloses an image recording apparatus and method, which comprises the steps of providing unexposed films (S as cut sheets) one by one, carrying the unexposed films to an exposure unit (64), exposing the film by providing thermal energy according to an image to be recorded as the film passes the exposure unit, and developing the exposed film by heating it at a heating unit (26), the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously (Fig. 4). Taniguchi et al. further teaches the heating unit being provided with two heating blocks (76 and 78) arranged on either side of the film, a film supply cassette (photosensitive material cartridge 50) in which the photosensitive material is stored, a film collection tray (tray 40) in which the exposed films are retrieved, being provided on opposite sides of two ends of an U-shaped carrying path, and the processes of exposure and heating being performed on a curved bottom face of the U-shaped carrying path (Fig. 4).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Taniguchi et al. for the purpose of providing a more compact thermal developing device.

On the other hand, Arai et al. discloses a heat developing apparatus (10, Fig. 1) having two heating boxes (heater boxes 20, 22) forming a film transporting passage in between, whose opposing surface layers (26) are Teflon-coated to provide a smooth

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transportation of the film therethrough (col. 6, lines 42-58). Arai et al. also teaches in a modified embodiment a heat developing apparatus (50) having two heating blocks (heater boxes 52, 54, Fig. 6) forming a film passage whose curvature is larger with respect to the emulsion side (upper side) of the film (12).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772), as modified by Taniguchi et al., with the aforementioned teaching of Arai et al. The motivation of doing so would have been to provide a smooth passage of the film through the heating unit.

With regard to claims 3 and 5, Imai et al. ('772) further teaches the heating unit providing a uniform distribution along the width of the film and the heating distance along the delivery direction, and the film passage having a large curvature (large curvature of the heating drum 68).

3. Claims 13, 15, 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al. and Arai et al., as applied to claims 1, 3, 5, 7 above, and further in view of Imai (U.S. 6,023,283).

Imai et al. ('772), as modified by Taniguchi et al. and Arai et al., discloses all the basic limitations of the claimed invention except for the density level detecting unit.

Regardless, Imai ('283) discloses an image forming apparatus and method, which comprises the steps of providing unexposed films (S) one by one, carrying the unexposed films to an exposure unit (12), exposing the film by providing thermal energy according to an image to be recorded as the film passes the exposure unit, and

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developing the exposed film by heating it at a heating unit (heat rollers 34a, 34b), the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously. Imai ('283) further teaches the heating unit being provided with two heating blocks (heat rollers 34a, 34b) arranged on either side of the film, a density level detecting unit (LED 125 and light detector 127, Fig. 21) downstream to the heater for the detecting the density of the developed image such that the exposure unit is controlled through a feedback loop.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Imai ('283) for the purpose of providing a better density control of the developed image.

4. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al., Arai et al., and Imai ('283), as applied to claims 1, 3, 5, 7, 13, 15, 17, 19 above, and further in view of Donaldson et al. (U.S. 6,114,660).

Imai et al. ('772) in view of Taniguchi et al. and Arai et al. on one hand and in view of Taniguchi et al., Arai et al. and Imai ('283) on the other hand, discloses all the basic limitations of the claimed invention except for the provision of the cooling region at the exit of the heating unit and flatness regain rollers after the cooling region.

However, Donaldson et al. discloses a photothermographic imaging system including a heating unit or thermal processor (10) for thermally developing exposed photothermographic element (12), a cooling apparatus (80, Fig. 10) provided at the exit end of the thermal processor, and a set of rollers (84-88) for maintaining the flatness of the photothermographic element, the cooling region as well as the flatness regain region having a length sufficient to cool down as well as to flatten the photothermographic element (col. 18, line 49 to col. 19, line 47).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cooling system and the set of rollers as taught by Donaldson et al. in the modified device of Imai et al. ('772) for the purpose of eliminating a possibility of curled film.

5. Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al.

Imai et al. ('772) discloses a thermal developing apparatus, which extracts unexposed films (A) one by one and carries them to an exposure unit (46), radiates a laser beam (L) according to an image signal onto the film as it passes the exposure unit, and developing the exposed film by heating it at a heating unit (heating drum 68), which provide a uniform temperature distribution.

However, Imai et al. ('772) fails to disclose the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and

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heating process being performed in parallel simultaneously, and the U-shaped carrying path (claim 26), and the heating unit being provided with heating blocks arranged on either side of the film (claim 27).

Regardless, Taniguchi et al. discloses an image recording apparatus and method, which comprises the steps of providing unexposed films (S as cut sheets) one by one, carrying the unexposed films to an exposure unit (64), exposing the film by providing thermal energy according to an image to be recorded as the film passes the exposure unit, and developing the exposed film by heating it at a heating unit (26), the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously (Fig. 4). Taniguchi et al. further teaches the heating unit being provided with two heating blocks (76 and 78) arranged on either side of the film, a film supply cassette (photosensitive material cartridge 50) in which the photosensitive material is stored, a film collection tray (tray 40) in which the exposed films are retrieved, being provided on opposite sides of two ends of an U-shaped carrying path, and the processes of exposure and heating being performed on a curved bottom face of the U-shaped carrying path (Fig. 4).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Taniguchi et al. for the purpose of providing a more compact thermal developing device.

6. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al., as applied to claim 26 above, and further in view of Arai et al.

Imai et al. ('772), as modified by Taniguchi et al., discloses all the basic limitations of the claimed invention except for the film passage comprising two fluoresin coated opposing surfaces having a constant width.

Arai et al. discloses a heat developing apparatus (10, Fig. 1) having two heating boxes (heater boxes 20, 22) forming a film transporting passage in between, whose opposing surface layers (26) are Teflon-coated to provide a smooth transportation of the film therethrough (col. 6, lines 42-58). Arai et al. also teaches in a modified embodiment a heat developing apparatus (50) having two heating blocks (heater boxes 52, 54, Fig. 6) forming a film passage whose curvature is larger with respect to the emulsion side (upper side) of the film (12).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al., as modified by Taniguchi et al., with the aforementioned teaching of Arai et al. The motivation of doing so would have been to provide a smooth passage of the film through the heating unit.

7. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al., as applied to claim 26 above, and further in view of Imai ('283).

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Imai et al. ('772), as modified by Taniguchi et al., discloses all the basic limitations of the claimed invention except for the density level detecting unit.

Regardless, Imai ('283) discloses an image forming apparatus and method for exposing and heat-developing films, and a density level detecting unit (LED 125 and light detector 127, Fig. 21) downstream to the heater for the detecting the density of the developed image such that the exposure unit is controlled through a feedback loop.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Imai ('283) for the purpose of providing a better density control of the developed image.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al., as applied to claim 26 above, and further in view of Donaldson et al.

Imai et al. ('772) in view of Taniguchi et al., discloses all the basic limitations of the claimed invention except for the provision of the cooling region at the exit of the heating unit and flatness regain rollers after the cooling region.

However, Donaldson et al. discloses a photothermographic imaging system including a heating unit or thermal processor (10) for thermally developing exposed photothermographic element (12), a cooling apparatus (80, Fig. 10) provided at the exit end of the thermal processor, and a set of rollers (84-88) for maintaining the flatness of the photothermographic element (col. 18, line 49 to col. 19, line 47).

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cooling system and the set of rollers as taught by Donaldson et al. in the modified device of Imai et al. ('772) for the purpose of eliminating a possibility of curled film.

Allowable Subject Matter

9. Claims 33-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of the claimed invention, with respect to claims 33-34, is the inclusion of the limitation, in the combination as currently claimed, that the a temperature distribution of the heating unit of the image processor is kept constant by adjusting the intensity of a heater element of the heating unit in such a manner that the intensity of the heater element in the center along the width of the film is higher than two ends, and which is not found taught or fairly suggested by the prior arts made of record, considered alone or in combination.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 3, 5, 7, 13, 15, 17, 19, 25-32 have been considered but are moot in view of the new grounds of rejection presented in this office action.

Conclusion

12. Applicant's amendment filed 05/19/03, which changes the scope of the independent claim 1, necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

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305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



HAI PHAM
PRIMARY EXAMINER

July 21, 2003